



CUMMINS QUICKTRIP User's Manual

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WELCOME

We thank you for purchasing the Cummins' QUICKTRIP™ application and QUICKCHECK™ III datalink adapter for Cummins Heavy-duty diesel engine applications. It is our hope that this device, coupled with your Palm™ handheld organizer, will add value to your already valuable Cummins engine by giving you the ability to download and reset trip and fault information quickly and conveniently¹. QUICKTRIP supported engine applications include: ISM, ISM 02, ISX, ISX 02, ISB, ISB 02, ISC, ISC 03, ISL, and ISL 03. Cummins M11 and N14 trip information is read only and data will not be saved or reset.

The QUICKTRIP application uses the QUICKCHECK III datalink adapter² to communicate with the engine ECM (electronic control module) component on the SAE J1587 datalink³. It is not intended to replace the Cummins INSITE™ tool. It has limited functionality compared to INSITE™, but offers the advantage of a more portable, affordable, and convenient tool for basic trip data and fault extraction.

Also available from Cummins Inc., is the QUICKREPORT™ vehicle reporting software for your computer. QUICKREPORT is a windows-based software application that allows you to create reports from the data retrieved by your handheld device using the QUICKTRIP application.

The QUICKREPORT software will allow you to analyze vehicle performance by creating custom reports containing the specific trip data items you select. Contact your local Cummins distributor to find out more about QUICKREPORT.

Handheld Device Requirements

QUICKTRIP is compatible with the Palm M500™, M505™, M515™, I705™, and Tungsten T™ handheld computing devices. QUICKTRIP is NOT compatible with Handspring™ computing devices. For convenience, this manual refers to all Palm computing devices as *handheld organizers*, *handheld devices*, or simply *handhelds* or *organizers* without including the Palm name or model.

QUICKTRIP requires version 3.5 or later of the Palm OS software for your handheld device

To operate the QUICKCHECK III datalink adapter, your handheld organizer requires version 3.3 or later of the Palm HotSync® synchronization technology

¹ Both Inactive and Active Faults are read from the ECM. Only Inactive Faults are reset.

² QuickTrip is NOT compatible with the QuickCheck II datalink adapter.

³ The SAE J1939 datalink is not yet supported by the QUICKTRIP application.

software. If your software is an earlier version, update it to the latest version without cost at the Palm web site: <http://www.palm.com>.

PC Requirements

These are the minimum requirements for your computer system to synchronize with a Palm handheld organizer as listed in the Palm computing device *Handbook*:

- IBM-compatible Pentium-class class computer
- Windows 98/Me/2000 (Windows 95/NT operating systems require a serial cradle, sold separately)
- 16 MB RAM (64 MB recommended with Windows 2000)
- 30 MB available hard disk space
- VGA monitor or better (256 color video display)
- CD-ROM drive (you can also download the Palm Desktop software from <http://www.palm.com>)
- Mouse
- One USB port or available serial port with the organizer cradle plugged in (serial cradle sold separately)

INSTALLATION

CAUTION: Connect and operate QUICKTRIP only when the vehicle is stationary. (The key switch must be in the *on* position.)

Software Installation

The QUICKTRIP installation is a typical Windows, self-extracting installation. It sets up the application for the handheld organizer and installs the QUICKTRIP Conduit. The conduit is used by the Palm HotSync Manager to transfer stored engine trip data from the handheld organizer to the host PC.

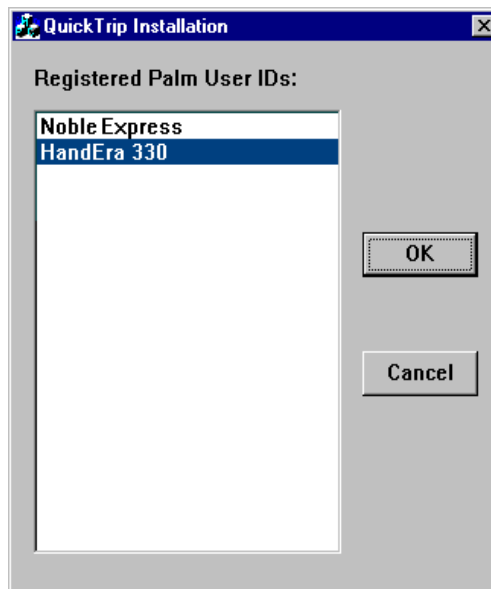
The QUICKTRIP software installation instructions are listed below. The following steps assume that you have already installed the handheld Desktop software and you have performed a HotSync operation with the handheld device at least once. If you have not installed this software and performed a HotSync operation, see the handheld handbook for instructions on installing the Desktop software.

1. Insert the QUICKTRIP CD-ROM⁴ into your computer.
2. Click on the Windows **Start** menu and select **Run**.
3. Type **e:Qtrip Setup.exe**, where e: is the letter assigned to the CD-ROM drive.
4. Click the **OK** button to begin the installation.
5. The *Welcome* window is displayed. Click on the **Next** button.
6. The message box below is then displayed. Select **OK** if you have already installed the Palm Computing DeskTop Software. If not, select **Cancel** to exit the QUICKTRIP installation. After installing the Palm Computing DeskTop Software, restart the QUICKTRIP installation.



⁴ In the event the QTrip Setup.exe installation file was obtained by a different means (e.g., the Internet), simply specify the source file and location in Step 3 using the Browse button, rather than specifying the computer drive.

7. Read the License Agreement and select **Accept** or **Decline**. If you decline the agreement, the installation will exit.
8. Read the information displayed, then click **Next**.
9. The installation will now install the necessary files to the PC.
10. After the files are copied, the window below is displayed. Select your Palm User ID from the list of registered Palm users, and then click **OK**. You must select the User ID for the handheld device you want to install the QUICKTRIP application on in order for the HotSync operation to install the QUICKTRIP application on that handheld device. If you want to install the QUICKTRIP software on another handheld device, the installation must be ran again.



NOTE: If there are no user IDs listed in this window, you most likely do not have the Palm Computing DeskTop Software installed or have never HotSync'ed the handheld device. In this case, select **Cancel** and exit the installation. You must then install the Palm Computing DeskTop Software, perform a HotSync operation on the handheld device, and run the QUICKTRIP installation again.

11. Click **Finish** on the *Installation Complete* window. The installation has now placed all needed PC components into the root directory for the handheld device (typically C:\palm). However, QUICKTRIP components are placed in the \qTrip directory immediately below the Palm root directory (ex. C:\palm\qTrip).

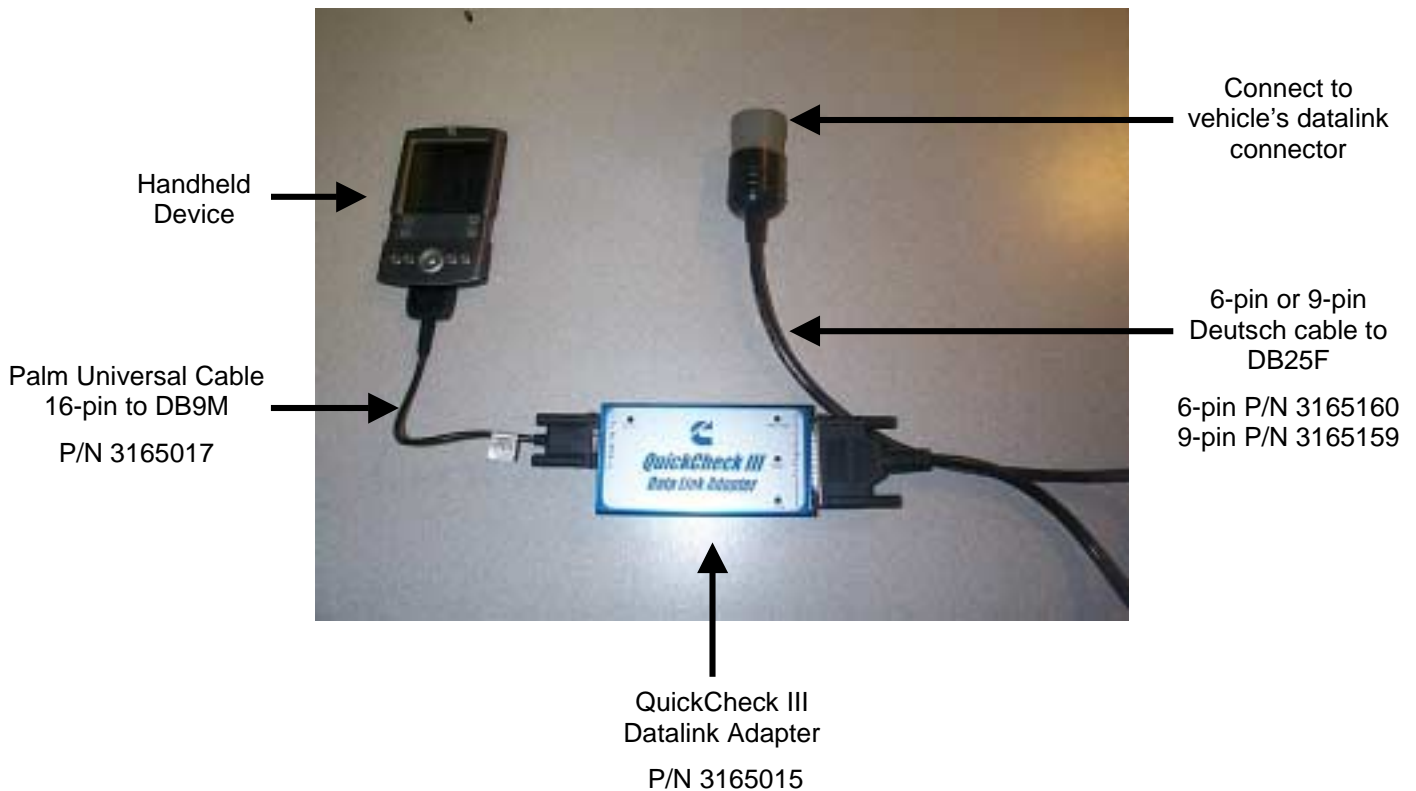
12. The HotSync Manager must be stopped and restarted to recognize the newly installed QUICKTRIP conduit. Please refer to the Palm computing device documentation that came with your handheld organizer for complete instructions on how to do this. If the default setting of the HotSync manager "Always available" has not been changed, then shutting down and restarting your PC will restart the HotSync Manager.
13. Perform a HotSync operation to install the QUICKTRIP application on the handheld organizer.

Important: Due to the amount of data required by the QUICKTRIP application, it will take several minutes for the HotSync to install the required databases. Please be patient during the installation process.

Adapter Installation

The QUICKTRIP application uses only the QUICKCHECK III datalink adapter to connect to the vehicle's J1587 datalink. The QUICKCHECK II datalink adapter is *not* compatible with the QUICKTRIP application.

The picture below illustrates how to connect the handheld device to the vehicle's datalink connector.



APPLICATION

The QUICKTRIP application, in conjunction with the QUICKCHECK III datalink adapter, allows you to read and capture select engine and subsystem data from your Cummins diesel-powered vehicle. This data includes active and inactive fault information and trip parameters.


With QUICKTRIP, you can:

- Read, store and reset engine trip data, such as idle parameters and vehicle distance
- Read and store both active and inactive engine and subsystem faults
- Clear Inactive faults from the ECM

Activating QuickTrip


After successfully installing the QUICKTRIP application and performing a HotSync operation on the handheld device, the QUICKTRIP application icon depicted at the right appears in the handheld organizer's application launcher. Tap the icon to launch the QUICKTRIP application.





The QUICKTRIP application checks for a vehicle on the datalink each time it is activated. After a vehicle is detected and the information is processed, the QUICKTRIP application must be exited and re-activated to detect another vehicle. Tap the  Exit icon in the top right-hand corner to close the application.

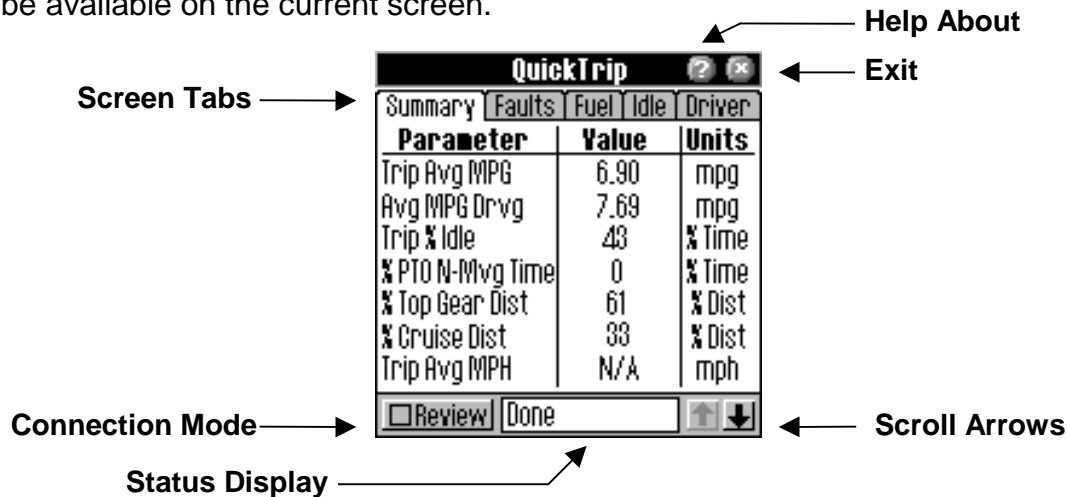
QuickTrip Basic Navigation

When the QUICKTRIP application is launched, the five available data screens are displayed in tabular form. The *Summary* screen is the default active screen when the application is started. To view the *Faults*, *Fuel*, *Idle*, and *Driver* screens, simply tap the screen's tab. Tapping the screen's tab will bring that screen forward and display the related information.

Tap the  Help About icon to display version information about the QUICKTRIP application and adapter.

Tap the  Exit icon to close the QUICKTRIP application.

Tap the  Scroll arrows to scroll up and down to view additional data that may be available on the current screen.



Tap and hold on a parameter name to display the expanded name. The Glossary also contains a complete description of each parameter.

Connection Modes

The Connection mode controls QUICKTRIP's mode of operation. This determines whether the application is viewing live or stored data. The two types of connection modes are *Live* or *Review*.

When in *Live* mode, the Review box is NOT selected and the application displays the data corresponding to the vehicle currently connected to the datalink.

When in *Review* mode, the Review box is selected and the application displays information corresponding to records that have been stored on the handheld device.

Live Mode

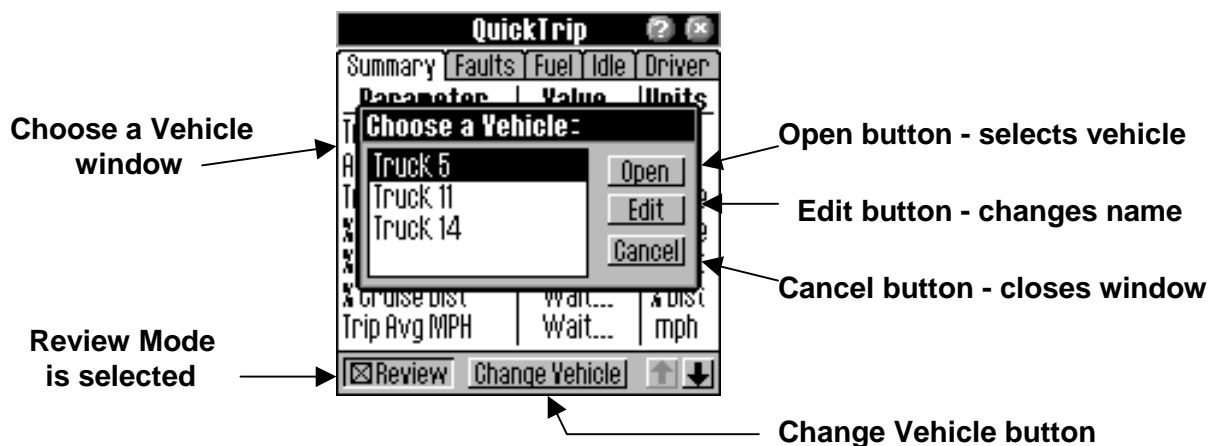
The QUICKTRIP application is in *Live* mode by default when it is first started. The Status Display field contains information about either the connection status or the data-saving status. Messages such as *Identifying ECM*, *Reading Data*, *Saving Data*, *No Adapter*, and *Datalink Down!* are examples of phrases displayed in this area of the screen. When using QUICKTRIP, glance at this portion of the screen for an idea of the current overall status of the application.

Review Mode

In *Review* mode, the application displays stored information for vehicles that have been previously connected to with QUICKTRIP. The Status Display field is replaced with a **Change Vehicle** button that is used to select a different vehicle to review. To change to *Review* mode, tap the Review box.

Tapping the Review box will automatically open the *Choose a Vehicle* window. This window lists all of the vehicles that QUICKTRIP has previously connected to. Tap the vehicle in the list that you want to review, then tap the **Open** button. The information for that vehicle's most recent trip will be displayed in the *Summary*, *Faults*, *Fuel*, *Idle* and *Driver* data display screens.

Note: If the selected vehicle has more than one trip record stored in the handheld device, only the vehicle's most recent trip is available for review. All other trip records for the selected vehicle remain stored on the handheld device until the next HotSync operation, when all data is archived to the PC.



Once in Review Mode, you may tap the **Change Vehicle** button to open the *Choose a Vehicle* window to select a different vehicle to review.

Tap the **Edit** button to change the name of the selected vehicle.

The **Cancel** button will close the *Choose a Vehicle* window without selecting a different vehicle.

Note: Trip records that are saved on the handheld device remain there until they are archived to a PC by the HotSync operation, at which point they are no longer available on the handheld device. See the section *Archiving Data to the PC* for details on this procedure.

Summary Screen

The Summary data display screen is the default active screen when the application starts. This screen lists a select set of trip parameters, their value, and the units they are displayed in.

Below is a complete list of the trip parameters⁵ displayed on the Summary screen:

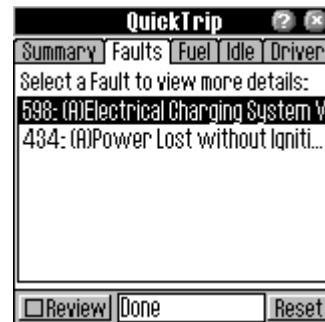
QuickTrip			?	*
Summary	Faults	Fuel	Idle	Driver
Parameter	Value	Units		
Trip Avg MPG	6.90	mpg		
Avg MPG Drvg	7.69	mpg		
Trip % Idle	43	% Time		
% PTO N-Mvg Time	0	% Time		
% Top Gear Dist	61	% Dist		
% Cruise Dist	33	% Dist		
Trip Avg MPH	N/A	mph		
<input type="checkbox"/> Review	Done			

- Trip Average MPG
- Trip Average MPG Driving
- Trip Percent Idle Time
- Trip Percent PTO Non-Moving Time
- Trip Percent Top Gear Distance
- Trip Percent Cruise Distance
- Trip Average MPH
- Trip Number of Sudden Decelerations
- Trip Distance
- Total Engine Hours

Faults Screen

The Faults screen's primary purpose is to display diagnostic fault codes that are currently recorded on the vehicle.

The list box on the Faults Screen shows all the active or inactive faults that are recorded on the current ECM or are stored in the current record if Review mode is activated. Faults are listed with the Cummins Fault Code number or PID/SID (see Glossary) and FMI number, followed by an (A) or (I) for Active or Inactive status, and then an abbreviated text description of the problem.



⁵ See the Glossary for a complete description of each trip parameter.


If more faults than can be displayed are recorded on the ECM, a scrolling arrow will appear at the bottom right corner of the list box. Tap the arrow to scroll down the list to display the additional faults.

Fault Zoom Box

More descriptive information can be obtained from these codes by selecting the row of the desired fault with the stylus. When a fault code is selected by the stylus, a zoom box with more detailed information is opened.



The zoom box provides more detailed information about the fault code. This includes a description of the fault, the Parameter Identifier (PID), the Subsystem Identifier (SID), the Failure Mode Identifier (FMI), the corresponding Cummins Fault Code (CFC), and the fault occurrence count. This information can be retrieved on current faults (in Live mode), as well as on fault records that are currently stored on the handheld device (in Review mode).

Tap the  Exit icon in the top right corner to close the fault zoom box and return to the fault list.

Active and Inactive Faults

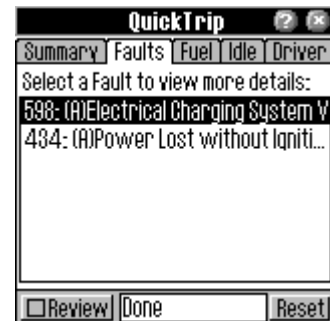
A fault can be either active, which indicates that the conditions which trigger that fault are currently active, or it can be inactive, which indicates that conditions have existed in the past to trigger that fault code, but they no longer exist.

Reset Faults Button

While in Live mode, the Faults screen will display a **Reset** button in the bottom right corner.

Tap the **Reset** button to clear the inactive faults in the ECM while QUICKTRIP is still connected. The **Reset** button will issue a command to the ECM to clear the current inactive faults from the ECM. This will also clear the fault lists display and request all of the fault information again. The ECM's active faults will then be re-displayed.

The **Reset** button is not displayed in Review mode since you cannot reset faults without being currently connected to the ECM.



Reset Inactive Faults button

Fuel Screen

The Fuel data display screen lists a select set of fuel-related trip parameters, their value, and the units they are displayed in.

Below is a complete list of the trip parameters⁶ displayed on the Fuel screen:

QuickTrip		
Summary	Faults	Fuel
Parameter	Value	Units
Trip Fuel Used	5.0	gal
Trip Avg MPG	6.90	mpg
Fuel Used Drvg	4.5	gal
Avg MPG Drvg	7.69	mpg
Trip Idle Fuel	0.5	gal
PTO N-Mvg Fuel	0.0	gal
PTO Mvg Fuel	0.0	gal
<input type="checkbox"/> Review <input type="button" value="Done"/>		

- Trip Fuel Used
- Trip Average MPG
- Trip Fuel Used Driving
- Trip Average MPG Driving
- Trip Idle Fuel
- Trip PTO Non-moving Fuel Used
- Trip PTO Moving Fuel Used

Idle Screen

The Idle data display screen lists a select set of trip parameters related to engine idle time. The parameter value and the units are also displayed.

Below is a complete list of the trip parameters⁶ displayed on the Idle screen:

QuickTrip		
Summary	Faults	Fuel
Parameter	Value	Units
Trip Idle Time	0.00	h
% Idle Time	0	% Time
PTO N-Mvg Time	0.72	h
% PTO N-Mvg Time	43	% Time
Idle + PTO	0.00	h
% Idle + PTO	N/A	% Time
PTO Mvg Time	1.64	h
<input type="checkbox"/> Review <input type="button" value="Done"/>		

- Trip Idle Time
- Trip Percent Idle Time
- Trip PTO Non-moving Time
- Trip Percent PTO Non-moving Time
- Trip Idle + PTO Time
- Trip Percent Idle + PTO Time
- Trip PTO Moving Time
- Trip Percent PTO Moving Time
- Trip Time

⁶ See the Glossary for a complete description of each trip parameter.

Driver Screen

The Driver data display screen lists a select set of trip parameters related to driver performance. The parameter value and units are also displayed.


Below is a complete list of the trip parameters⁷ displayed on the Driver screen:

QuickTrip		
Summary	Faults	Fuel Idle Driver
Parameter	Value	Units
% Top Gear Dist	61	% Dist
% Gear Dwn Dist	21	% Dist
% Cruise Dist	33	% Dist
% Idle Time	43	% Time
% PTO N-Mvg Time	0	% Time
% PTO Mvg Time	N/A	% Time
Trip Avg MPH	N/A	mph
<input type="checkbox"/> Review Done		

- Trip Percent Top Gear Distance
- Trip Percent Gear Down Distance
- Trip Percent Cruise Distance
- Trip Percent Idle Time
- Trip Percent PTO Non-moving Time
- Trip Percent PTO Moving Time
- Trip Average MPH
- Trip Number of Sudden Decelerations
- Service Brake Actuations / 1K Miles
- Trip Number of Coasts Out of Gear
- Trip Coast Time Out of Gear
- Maximum Engine Speed
- Maximum Vehicle Speed
- Trip Fan On time Due to Manual Switch
- Trip Time
- Trip Distance
- Trip Top Gear Distance
- Trip Gear Down Distance
- Trip Cruise Distance
- Trip PTO Moving Distance

⁷ See the Glossary for a complete description of each trip parameter.

Vehicle Unit # Window


The **Vehicle Unit #** is a unique label chosen by the user to identify each vehicle. The first time QUICKTRIP connects to a vehicle, the *Enter a Veh Unit #* window is displayed. Enter an alphanumeric label for the vehicle using the Graffiti or keyboard input method. Tap the  **OK** icon to save the vehicle unit number and close the window. The vehicle unit number entered will be recalled on subsequent connections to that vehicle.

Note: A vehicle unit number must be entered in order to save the vehicle's data to the handheld device.



ECM Password Window



QUICKTRIP displays the *Password* window during a data-gathering session when the connected vehicle has an ECM password assigned. Use the graffiti or keyboard input method to enter the ECM's password. When finished, tap the  **OK** icon to enter the password and close the window.

Note: *The password is displayed on the screen as it is entered. It is not masked with asterisks.*

A valid password must be entered to successfully save the vehicle's data to the handheld device. After 3 unsuccessful attempts, the *Password* window will close and the data-gathering session will continue, but the data will NOT be saved to the handheld device or reset in the ECM.

Reset Trip Data Window



The *Reset Trip Data* window allows the user to reset the trip information in the connected vehicle. The trip data must be reset in order to be saved to the handheld device.

Tap the **Yes** button to reset the data in the ECM. Tapping the **No** button will not reset the data in the ECM.

ARCHIVING DATA TO THE PC

The QUICKTRIP data may be transferred from the handheld device to a PC for longer-term storage. Additionally, data transferred to the PC no longer resides on the handheld, which frees up its memory.

QUICKTRIP data is transferred from the handheld to a PC during the HotSync operation. This transfer relies on a conduit (described below) that is installed when the QUICKTRIP application is installed.

Conduit Overview

The Palm HotSync Manager oversees the process of synchronizing data. The handheld organizer uses a conduit to transfer data to and from the user's PC.

However, with QUICKTRIP, data can only be transferred one way—from the handheld organizer *to* the PC. This allows the PC to unload data from the handheld and free up memory.

This is the process QUICKTRIP uses to archive data from the handheld device to the PC. All of the trips stored on the handheld device are transferred to the PC during the HotSync operation. The data is then no longer stored on the handheld.

See the *Configuring the Conduit* section below for information on how to configure the QUICKTRIP conduit correctly.

Conduit Installation

The QUICKTRIP Conduit is installed automatically when you install the QUICKTRIP software. See the *Installation* section on page 7 for details on the installation of the software.

Configuring the Conduit

Conduit customization is achieved by accessing the HotSync Manager⁸ by right-clicking the icon (depicted at the right) located in the bottom right portion of the PC screen and choosing *Custom*. Currently, the only valid QUICKTRIP options are to allow the conduit to transfer data from the handheld organizer to the PC or to disable the conduit altogether.



Hot Sync
Manager
Icon

⁸ See the Palm computing device handbook for your handheld organizer for a complete description.

To configure the QuickTrip conduit to transfer data from the handheld device to the PC during the HotSync operation, click on the conduit named “Cummins QuickTrip Vx.y” (where x.y is the version number), then click the Change button. Select either the *Synchronize the files*⁹ or the *Handheld Overwrites Desktop* option.

To disable the conduit, select the *Do Nothing* option. The conduit is also virtually disabled in the *Desktop Overwrites Handheld* mode because data can only be transferred one way—from the handheld organizer to the PC. If either of these options is selected, the trips stored on the handheld device will **NOT** be transferred to the PC during the HotSync operation. They will remain on the handheld device.

Data Transferred from Handheld to PC

The QUICKTRIP conduit transfers three types of information from the handheld device to the PC—equipment, trip, and faults. It creates and maintains three files, one for each type of data. The files are named `equipment.pdb`, `faults.txt`, and `TRP???.xml`, where ??? is replaced by a random set of alphanumeric characters (e.g., `TRP2A8.xml`, `TRP465.xml`).

A new `TRP???.xml` file will be created for each trip record transferred from the handheld device to the PC. The `equipment.pdb` and `faults.txt` files are appended to every time a HotSync process occurs, regardless of which user performs the process. This is different from what normally happens during a HotSync synchronization (usually the system separates information by user).

In addition to appending new information to the end of the `equipment.pdb` and `faults.txt` files, backup versions are maintained, in case something catastrophic happens during a given HotSync process.

Upon a successful synchronization of QUICKTRIP data, the conduit instructs the handheld organizer to remove the downloaded fault and trip records from the handheld organizer, freeing memory for future downloads or other application data. As a result, the fault and trip data is not available to be examined on the handheld organizer—only on the PC.

The vehicle information is not removed from the handheld device. The vehicle unit number and any previously entered password information is retained on the handheld for convenience.

⁹ This is the default setting.

File Location on PC

The location of the HotSync output files from QUICKTRIP is as follows:

```
[palm root10]\qTrip\equipment.pdb
[palm root]\qTrip\faults.txt
[palm root]\qTrip\TRP???.xml
```

The backup copies of the `faults.txt` and `equipment.pdb` files are stored in the same directory, but have the extension `.bak`.

Faults File Format

The `faults.txt` output file is a spreadsheet-compatible, comma-delimited text file format. Each entry or record is a single line with multiple fields, separated by commas. This allows files to be easily imported into a program such as Microsoft Excel for further analysis. Users that want to manipulate the fault data further must use the exact format detailed in the table below. A sample entry from the `faults.txt` file is also displayed.

BEGIN: 11992244

597,167,1,128,7,4, Electrical Charging System Voltage - Warning Level (597 or 598), Fri Mar 21 13:26:02 2003

END: 11992244

Fault File Format	
Field Name	Description
BEGIN	String —marks beginning of fault record for specified engine serial number
Fault Code	Number —Cummins fault code, if applicable
Fault Identifier	Number —PID or SID, depending on flag value
Failure Mode Identifier	Number —(sometimes referred to as FMI)
Message Identifier	Number —(sometimes referred to as MID or source address)
Flags	Number Bit Field —0x01 set if PID (cleared if SID) 0x02 set if fault active (cleared if inactive) 0x04 set if Cummins fault code is valid (cleared if not a Cummins fault code)
Fault Count	Number —number of occurrences of fault
Fault Description	String —text string describing the fault

¹⁰ This is typically C:\palm

Fault File Format	
Field Name	Description
Time of HotSync	String —date and time of HotSync operation
END	String —marks beginning of fault record for specified engine serial number

Trips File Format

The TRP???.xml output file is in XML file format. One file exists for each trip transferred from the handheld device to the PC. The filename always begins with "TRP" followed by randomly generated alphanumeric characters (e.g., TRP2A8.xml, TRP465.xml, etc.).

The file is divided into three basic sections: VEH, JOB, and TRIP. The VEH section contains the vehicle's unit number and engine serial number. The JOB section contains the vehicle's unit number, the date the data was extracted, the tool used to extract it, and the version of that tool. The TRIP section contains each of the trip data items extracted from the vehicle.

The XML file format is viewable with a web browser. A sample XML file is displayed below.

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
<ROOT>
  <VEH>
    <VEHUNITNUM>blue 67</VEHUNITNUM>
    <ENGSERIALNUM>33</ENGSERIALNUM>
  </VEH>
  <JOB>
    <VEHUNITNUM>blue 67</VEHUNITNUM>
    <EXTRACTDATE>2003-03-28 14:54:40</EXTRACTDATE>
    <TRIPSOURCE>QC2</TRIPSOURCE>
    <TOOLVERSION>1.5</TOOLVERSION>
  </JOB>
  <TRIP>
    <VEHUNITNUM>blue 67</VEHUNITNUM>
    <EXTRACTDATE>2003-03-28 14:54:40</EXTRACTDATE>
    <MAXENGSPD>2340</MAXENGSPD>
    <MAXVEHSPD>71.5</MAXVEHSPD>
    <DIST>648.7</DIST>
    <CCDIST>55</CCDIST>
    <TOPGEARDIST>449.3</TOPGEARDIST>
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```

```

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</TRIP>
</ROOT>

```

Accessing the Data with QuickReport

QUICKREPORT is a windows-based software application available from Cummins Inc. that allows you to create reports with the data retrieved by the QUICKTRIP application.

Once the data is archived to the PC, the QUICKREPORT vehicle reporting software will allow you to analyze vehicle performance by creating custom detailed history reports containing the specific trip data items you select.

For more information about QUICKREPORT, please contact your local Cummins distributor. Information about your local Cummins distributor can be found at our web site: <http://www.cummins.com>.

BASIC TUTORIAL

This section describes a typical data-gathering session. It begins with connecting to a vehicle, collecting (scanning) the data, saving the data, resetting inactive faults, reviewing previously collected data, and finally downloading the saved data to the PC using the HotSync process.

This tutorial assumes the following:

- The handheld organizer will be connected to a vehicle that it has not been previously connected to;
- The user is familiar with Palm handheld organizer standard operations;
- The QUICKTRIP cable, adapter, and handheld have been properly connected.

Step 1: Connecting Cables Attach the 16-pin connector on the Palm Universal Cable to the bottom of the handheld organizer. Attach the DB9 male connector on the Palm Universal Cable to the connector on the QuickCheck III Datalink Adapter labeled "To PC/PDA". Attach the DB25 Female connector of the Deutsch cable to the QuickCheck III Datalink Adapter connector labeled "To Engine". Connect the appropriate 6-pin or 9-pin Deutsch connector to the vehicle's datalink connector. See the *Adapter Installation* section on page 10 for an illustration.

Step 2: Connect to Vehicle The engine should be keyed "On". Tap the QUICKTRIP application icon. If the **Connection Mode** (lower left corner of the screen) indicates *Live* mode (Review box is not selected), the QUICKTRIP application immediately attempts to connect to the datalink. If the **Connection Mode** is set to *Review* mode, select *Live* mode now.

Step 3: Reading Data When a successful connection is established, QUICKTRIP displays the message *Identifying ECM* in the status window. After the vehicle's ECM has been identified, the status window will display *Loading Tables*, then *Reading Data*.

Step 4: Resetting Data At this point the vehicle's trip and fault information have been extracted from the ECM, but have not been reset. QUICKTRIP will display the *Reset Trip Data* pop-up window. Selecting **Yes** will reset the trip data in the ECM and save the data to the handheld device. Selecting **No** will NOT reset the trip data in the ECM and the trip data will NOT be saved to the handheld device. Select **Yes** to continue.

Step 5: Equipment ID If the vehicle's ECM dataplate information does not contain a Vehicle Unit Number and the vehicle has not previously connected to QUICKTRIP, the *Enter a Veh Unit #* pop-up window will be displayed. Using standard Palm computing device text methods (graffiti, keyboard, etc.), enter a name or label that is logical, user friendly, and easy to remember. Tap the **OK** icon to accept the vehicle unit number and close the pop-up window.

Step 6: ECM Password If the connected vehicle contains an ECM password, the *Password* pop-up window will be displayed. Enter the ECM password using standard Palm computing device text methods (graffiti, keyboard, etc.). Tap the **OK** icon to accept the password and close the pop-up window.

Note: The password is displayed on the screen as it is entered. It is not masked with asterisks.

Step 7: Saving Data The status window displays *"Saving Data"*. The application saves the current values for the trip and fault information. This information is time-stamped and can be viewed later, even when QUICKTRIP is not connected to the engine.

Step 8: Creating Report The status window displays *"Creating Report"* and then *"Done"*. The trip data and fault information (if present) is displayed on the handheld device. The information has been saved to the handheld device and is viewable by tapping on the tab labels across the top of the window. The *Summary* screen is on top. Tap the *Faults*, *Fuel*, *Idle* or *Driver* tab labels to see the data related to that category.

Step 9: Resetting Faults If faults are present, you will see them listed on the *Faults* screen. Tap on the tab labeled *Faults*. The *Faults* screen is displayed. Tapping on any fault opens a pop-up window that displays more details about the selected fault. To reset the inactive faults in the ECM, tap the **Reset** button in the lower right corner of the screen. The *Clear Inactive Faults* pop-up window appears. Tap **Yes** to reset the inactive faults in the ECM. Tap **No** to exit this window without resetting inactive faults.

The data gathering session on this vehicle is now complete. You may disconnect the handheld device from the vehicle.

Step 10: Reviewing Data Previously stored data is viewable on the handheld by setting the **Connection Mode** to *Review* instead of *Live*. Tap the **Review** box in the lower left corner of the screen to set *Review* mode. The *Choose a Vehicle* pop-up window is displayed. Tap on a vehicle unit number, and then tap the **Open** button. The data display screens now show the information from the most recent trip for the

selected vehicle. The selected vehicle may have more than one trip stored in the handheld device, but only the most recent is viewable.

Step 11:
HotSync
Process

The handheld device now contains trip information from at least one vehicle. Disconnect the cable from the handheld. Place the handheld in the cradle connected to the PC that the QUICKTRIP software was installed on. Perform a HotSync operation (see your Palm Handbook for information on how to perform a HotSync operation with your handheld device). The QUICKTRIP data is transferred from the handheld to the PC and is no longer viewable on the handheld device. See the section *Archiving Data to the PC* on page 19 for more details on this process.

APPENDIX A: MAINTAINING YOUR QUICKTRIP HARDWARE

Datalink Cable Storage

The datalink end of the cable should be disconnected from the vehicle datalink when the adapter is not in use.

Care

Treat the datalink adapter with care, just as you do the Palm handheld organizer. Neither is waterproof and should not be exposed to rain or moisture.

Also, like the handheld, the adapter should be protected from temperature extremes. Do not leave it on the vehicle dashboard on a hot day and keep it away from other heat sources, including heaters.

APPENDIX B: QUICKCHECK III KIT CONTENTS

P/N 3165142 QuickCheck III RS-232 Kit

Kit Contents

P/N 3165015	QuickCheck III Adapter RS-232
P/N 3165159	QuickCheck 9-pin Deutsch Cable to DB25F
P/N 3165160	QuickCheck 6-pin Deutsch Cable to DB25F
P/N 3165017	Palm Universal Cable, 16-pin to DB9M
P/N 3165149	QuickCheck III Software CD-ROM: <ul style="list-style-type: none"> • QuickCheck III installation program • QuickTrip installation program
P/N 3165143	Storage Case

Optional Cables for QuickCheck III:

P/N 3824438	DB25F 2-pin Weather-Pack/Cigarette Plug connector
P/N 3824440	DB25F 8-pin AMP connector
P/N 3162849	2-pin Weather-Pack/Cigarette Plug connector
P/N 3162851	Extension DB9F to DB9M (30.48M [100ft])
P/N 3162847	DB25F 3-pin Deutsch/2-pin Weather-Pack connector
P/N 3163096	J1939 Backbone adapter
P/N 3163597	J1939 gender changer adapter
P/N 3163646	3-pin Deutsch/3-pin Weather-Pack adapter for Dodge pickup
P/N 3165141	DB25F 2-pin Weather-Pack/3-pin Deutsch/Cigarette Plug connector

APPENDIX C: FREQUENTLY ASKED QUESTIONS

Before contacting your local Cummins distributor for support, please experiment a bit to reproduce and isolate the problem. If you find it necessary to contact your distributor, please be ready to provide the following information:

- The version of the Windows operating system you are using on your PC
- The actual error message or state that you are experiencing
- The steps you take to reproduce the problem
- The version of organizer software you are using and available memory
- The version of QuickTrip software and Conduit you are using
- The version of HotSync Manager you are using on your PC



To find Windows operating system version information:

1. Click the **Start** menu in the Windows system tray on the bottom left side of your computer screen in the Taskbar
2. Choose **S**ettings, then click **C**ontrol Panel
3. Double-Click **S**ystem

To find organizer version and memory information:

1. Tap the application icon on the handheld organizer
2. Tap the menu button located on the handheld organizer
3. Tap **A**pp, and then tap **i**nf
4. Tap **V**ersion to see version numbers, and tap **S**ize to see the amount of free memory, in kilobytes

To find QUICKTRIP version information:

1. Tap the QUICKTRIP application icon
2. Tap the  Help About button located in the top right corner
3. The version information is displayed
4. Tap  Exit icon to close the window

To find HotSync Manager version information:

1. Click the HotSync Manager icon in the Windows system tray on the bottom right side of your computer screen in the Taskbar
2. Click **About**

Installation Problems

- | | |
|---|--|
| I'm having problems installing my Desktop organizer software. | <ul style="list-style-type: none">• Review the Palm Handbook, including its Frequently Asked Questions. Use Palm Technical Support if needed. |
| I tried to install the QuickTrip software on my computer and it would not install. | <ul style="list-style-type: none">• Verify that your computer meets the system requirements listed on page 6. The QuickTrip software is not Mac-compatible.• HotSync Manager and the Palm Desktop software must be installed on your computer before QuickTrip software can be installed. If they are not installed on your computer, then insert the Palm Desktop CD-ROM into your computer and wait for the Installer Menu Screen. Click <i>INSTALL</i> and follow the instructions onscreen. |
| I am using Desktop organizer software other than the Palm Desktop software and my QuickTrip software and Conduit would not install. | <ul style="list-style-type: none">• Activate the Palm Desktop software, install the QuickTrip software, then activate the Desktop software that you use. The latest version of the Palm Desktop software can be downloaded without cost at the Palm web site: http://www.palm.com |
| I tried to install a new version of QuickTrip software and it would not install properly on my organizer. | <ul style="list-style-type: none">• Delete the old version of software from the Palm organizer, then install the new version of software. |

Hardware Problems

My adapter won't turn on (QuickTrip shows a *No Adapter* status).

Try each of these in turn:

- Verify the cables are properly installed and firmly connected to the handheld device and to the adapter.
- Verify the Power LED on the adapter is on steady and not blinking.

I cannot read engine/vehicle data (QuickTrip shows a *Datalink Down!* Status).

- Take the datalink cable off and install again. Verify that the vehicle key is in the *On* position and the ECM is getting power.
- Verify the extension cables are properly installed and firmly connected.
- Check for loose, bent, broken, or incorrectly installed connector pins on the cables.
- Verify the J1708 and RS-232 LEDs on the adapter are blinking fast.

Application Problems

I tried to save engine/vehicle data and it would not save.

- Make sure a Vehicle Unit ID is entered.
- Verify that the make, model, and serial number have been received. Data from equipment cannot be saved without an Electronic Data Plate that includes the make, model, and serial number.
- Verify the engine serial number is not zero.
- Verify the vehicle has a trip distance of 1 mile or greater. Trips under 1 mile are not saved.
- Verify the engine is not an M11 or N14. These engine platforms are not supported for resetting or saving data.

I went into Review mode to review my saved data and the application is slow.

- Verify the ECM password, if present, is valid.
- The more records of saved data that are on the organizer, the longer it will take to view the saved data. Removing records from the organizer by a HotSync will speed up the application.

HotSync Problems

I tried to do a local HotSync operation, but it did not complete successfully.

- Verify that the HotSync Manager is running. If it is not, open the Palm Desktop software. If the HotSync Manager is running, exit and restart it.
- Click the HotSync Manager, choose *Setup*, and click the *Local* tab. Check that the Serial Port setting displays the correct COM port where your cradle is attached. Your organizer cannot share this port with an internal modem or other devices, such as INSITE.
- Make sure the cradle is connected securely.
- Review the Palm Handbook, including its Frequently Asked Questions. Use Palm Technical Support if needed.

I did a HotSync operation, but the QuickTrip application did not synchronize.

- Verify that the HotSync Manager is running. If the HotSync Manager is running, exit and restart it.
- Click the HotSync Manager and choose *Custom*. Check that the Cummins QuickTrip conduit is set to Synchronize the files.
- The Palm Desktop software must be installed and activated on your computer to HotSync the QuickTrip software.

I did a HotSync operation, but my QuickTrip data did not get uploaded to my computer.

- Verify that the HotSync Manager is version 3.3 or later and is running. Update it to the latest version without cost at the Palm web site: <http://www.palm.com>
- Click the HotSync Manager and choose *Custom*. Check that the Cummins QuickTrip conduit is set to Synchronize the files.
- There are no databases until equipment data is saved on the organizer. Once data is saved, the databases are created.

Beaming Problems

I cannot beam the QuickTrip application to another organizer.

- The QuickTrip application is copy-protected and cannot be beamed.

Help Desk Support Center

If you encounter a problem with your QUICKTRIP product, please contact your local Cummins distributor only after you have reviewed the previous list of Frequently Asked Questions, the updated Frequently Asked Questions on the QuickCheck web site at <http://quickcheck.cummins.com>, and the Palm Handbook, including its list of Frequently Asked Questions. Information about your local Cummins distributor can be found at our web site: <http://www.cummins.com>.

Note: Cummins distributors are not able to provide support for Palm computing device platform issues. If you are having a problem with the Palm organizer, please review the Palm Handbook, then contact Palm Technical Support if necessary. The Handbook also includes a list of Frequently Asked Questions that should be reviewed.

APPENDIX D: FAULT CODES

This Appendix provides information about the engine and vehicle subsystem fault codes that you may receive from your vehicle. CFC is the Cummins fault code. PID is the parameter identifier. SID is the subsystem identifier. FMI is the failure mode identifier. Each CFC, PID, SID, and FMI is identified by a number. You may notice some numbers missing from the following tables, as **NOT** all numbers have been defined.

CFC Number Range Supported

18 - 2295*

* - Not all CFC numbers are assigned by Cummins. If QuickTrip reads a fault with an unknown CFC number, it will display "*description not available*".

Note that no zeros are used in CFC numbers because CFC numbers are also used for codes flashed on diagnostic lamps.

Failure Mode Identifiers (FMI)*

FMI	Description
0	Data valid but above normal operational range
1	Data valid but below normal operational range
2	Data erratic, intermittent or incorrect
3	Voltage above normal or shorted high
4	Voltage below normal or shorted low
5	Current below normal or open circuit
6	Current above normal or grounded circuit
7	Mechanical system NOT responding properly
8	Abnormal frequency, pulse width or period
9	Abnormal update rate
10	Abnormal rate of change
11	Failure mode NOT identifiable
12	Bad intelligent device or component
13	Out of calibration
14	Special instructions
15	Data valid but above normal operational range (least severe)
16	Data valid but above normal operational range (moderately severe)
17	Data valid but below normal operational range (least severe)

- 18 Data valid but below normal operational range (moderately severe)
- 19 Received network data in error
- 20 Reserved for future assignment
- 21 Reserved for future assignment
- 22 Reserved for future assignment
- 23 Reserved for future assignment
- 24 Reserved for future assignment
- 25 Reserved for future assignment
- 26 Reserved for future assignment
- 27 Reserved for future assignment
- 28 Reserved for future assignment
- 29 Reserved for future assignment
- 30 Reserved for future assignment
- 31 Not available or condition exists

* - FMI descriptions always follow the CFC, PID, or SID descriptions in the detailed Fault Description zoom box.

APPENDIX E: CONNECTOR PIN-OUTS

DEUTSCH HD16 - 6 - 12S

6-position connector

A - J1587 +

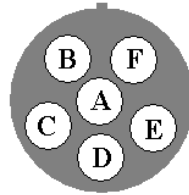
B - J1587 -

C - Power +

D - NC

E - Ground

F - NC



DEUTSCH HD16 - 9 - 1939S

9-position connector

A - Ground

B - Power +

C - J1939 +

D - J1939 -

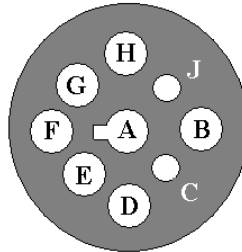
E - NC

F - J1587 +

G - J1587 -

H - NC

J - NC



6-Pin Cable P/N 3165160

DEUTSCH HD16 - 6 - 12S 6-position connector FROM PIN	DB25 Female TO PIN	FUNCTION
A	3	J1587 +
B	4	J1587 -
E	23	Ground
C	25	Power +

9-Pin Cable P/N 3165159

DEUTSCH HD16 - 9 - 1939S 9-position connector FROM PIN	DB25 Female TO PIN	FUNCTION
F	3	J1587 +
G	4	J1587 -
C	6	J1939 +
E	7	J1939 Shield
D	8	J1939 -
A	23	Ground
B	25	Power +

GLOSSARY

Communicating	QuickTrip is in the process of re-establishing communications on the datalink after saving data
Datalink Down!	QuickTrip is not reading any data from the datalink
Disconnected	parameter data is not being read from the datalink
ECM	Electronic Control Module
Failure Mode Identifier	the SAE-defined type of failure detected
handheld organizer handheld device handheld organizer	Palm computing devices for QUICKCHECK datalink reader: Palm M500™, M505™, M515™, I705™, and Tungsten T™
HotSync Manager®	Palm computing device synchronization technology control software
HotSync® process	Palm computing device synchronization technology
Identifying ECM	QuickTrip is in the process of identifying the connected ECM
INLINE™	another Cummins Inc. datalink adapter
INSITE™	another Cummins Inc. service tool
J1587	a low-speed SAE-defined message format used on a J1708 interface
J1708	the SAE-defined hardware interface for J1587 (and J1922) messages
Maximum Engine Speed	the maximum engine speed (RPM) recorded since last trip reset
Maximum Vehicle Speed	the maximum vehicle speed recorded since last trip reset
N/A	data for the parameter is not available to read
No Adapter	QuickTrip is not communicating with the adapter
PID	Parameter Identifier, as defined in the SAE J1587 standard

QUICKCHECK™ II Adapter	Cummins Inc. datalink reader compatible with the QuickCheck II application, but not compatible with the QuickTrip application
QUICKCHECK™ III Adapter	Cummins Inc. datalink reader compatible with the QuickTrip application
Reading Data	indicates that data is being read by QuickTrip
SAE	Society of Automotive Engineers, the organization that establishes on-road and off-road motor vehicle standards
Saving Data	indicates that data is being stored in a new record
Service Brake Actuations / 1K Miles	the number of service brake actuations per 1000 miles accumulated since last trip reset
SID	Subsystem Identifier, as defined in the SAE J1587 standard
Total Engine Hours	the accumulated time of operation of engine
Trip Average MPG	the average number of miles traveled per gallon of fuel used since last trip reset (Trip Distance / Trip Fuel Used)
Trip Average MPG Driving	the average number of miles traveled per gallon of fuel used while driving since last trip reset (Trip Distance / Fuel Used Driving)
Trip Average MPH	the average number of miles traveled per hour of time since last trip reset (Trip Distance / Trip Time)
Trip Coast Time Out of Gear	time accumulated in coast while of out gear since last trip reset
Trip Cruise Distance	the distance traveled while in cruise since last trip reset
Trip Distance	the distance traveled since last trip reset
Trip Fan On Time Due to Manual Switch	the time accumulated with fan on due to manual switch since last trip reset
Trip Fuel Used	the fuel consumed since last trip reset
Trip Fuel Used Driving	the fuel consumed while driving since last trip reset
Trip Gear Down Distance	the distance traveled while in gear down since last trip reset

Trip Idle + PTO Time	the combined time accumulated while in idle and PTO since last trip reset (Trip Idle Time + PTO Non-moving Time)
Trip Idle Fuel	the amount of fuel consumed while idling since last trip reset
Trip Idle Time	the time accumulated while idling since last trip reset
Trip Number of Coasts Out of Gear	the number of coasts while out of gear accumulated since last trip reset
Trip Number of Sudden Decelerations	the total number of decelerations whenever the vehicle is more than XYZ km/h/s (where XYZ is a calibrated threshold), since the last trip reset
Trip Percent Cruise Distance	the percent of distance traveled while in cruise since last trip reset $((\text{Cruise Distance} / \text{Trip Distance}) * 100)$
Trip Percent Gear Down Distance	the percent of distance traveled while in gear down since last trip reset $((\text{Gear Down Distance} / \text{Trip Distance}) * 100)$
Trip Percent Idle + PTO Time	the percent of combined time accumulated while in idle and PTO since last trip reset $(((\text{Trip Idle Time} + \text{PTO Non-moving Time}) / \text{Trip Time}) * 100)$
Trip Percent Idle Time	the percent of time accumulated while idling since last trip reset $((\text{Trip Idle Time} / \text{Trip Time}) * 100)$
Trip Percent PTO Moving Time	the percent of time accumulated in PTO while moving since last trip reset $((\text{PTO Moving Time} / \text{Trip Time}) * 100)$
Trip Percent PTO Non-moving Time	the percent of time accumulated in PTO while stationary since last trip reset $((\text{PTO Non-Moving Time} / \text{Trip Time}) * 100)$
Trip Percent Top Gear Distance	the percent of distance traveled while in top gear since last trip reset $((\text{Top Gear Distance} / \text{Trip Distance}) * 100)$
Trip PTO Moving Distance	the distance travel in PTO while moving since last trip reset

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Trip PTO Moving Fuel Used	the fuel consumed in PTO while moving since last trip reset
Trip PTO Moving Time	the time accumulated in PTO while moving since last trip reset
Trip PTO Non-moving Fuel Used	the fuel consumed in PTO while stationary since last trip reset
Trip PTO Non-moving Time	the time accumulated in PTO while stationary since last trip reset
Trip Time	the time accumulated in hours since last trip reset
Trip Top Gear Distance	the distance traveled while in top gear since last trip reset

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